Beyond Google…a collaborative approach to research

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Introduction

> "So we have a sixteen year-old who has the technical skills to use the Internet but doesn't have the validations skills to understand the structure of the information… the technical skill (of using the internet) is trivial compared to the critical thinking skills needed."
>
> (November, 2011)

With the introduction of the internet into the mainstream of education and our daily lives, evidence shows that the information literacy skills of students are limited and insufficient to navigate the abundance of information sources now available to them (Julien and Barker, 2009; Salisbury and Karasmanis, 2011). In the secondary school environment, the student-librarian-teacher ratio is at its best and as a result, it provides the optimal setting to maximize their skills before they begin the next chapter of their lives. In response to a call for professional learning cycle (PLC) proposals and a perceived need to improve the research skills of our students, our group formulated a lesson plan-turned - study. By using the process of the PLC (Dufour and Eaker, 1998)**,** the librarian and teacher collaborate to embed IL strategies into already planned assignments. Students learn to search databases efficiently and effectively by moving beyond keyword searches to develop more sophisticated search strategies. We developed pre- and post-lesson surveys to evaluate current knowledge and the degree of learning. Our experience showed that our young people developed a meaningful approach to research for learning and integrated this learning into other class settings. This suggests that this approach has the potential, if repeatedly reinforced in different classes and over the span of their secondary careers, to change their routine information-seeking practice for life whether that means a post-secondary environment, a working environment and/or a personal environment.

Method

Our research was done at a single secondary school in South-western Ontario. The target group was Grade 9 students at the beginning of their first semester. We did not want to increase the workload of the teaching staff or the students by adding yet another assignment to an already heavy workload but rather integrate the concepts into the already planned culminating task and instruct the students on advanced searching strategies and on citing skills.

The goals were to demonstrate the student's ability to:
- choose an appropriate database
- log into the database
- choose effective search terms/synonyms
- narrow his/her search by exploiting the features of the database
- cite sources in a bibliography using MLA or APA styles

A lesson plan was created with teacher notes/timeline, along with a pre-survey to determine student attitudes and behaviours when conducting research, and a pre-scavenger hunt to determine the effectiveness of their current research skills. Teachers were not to direct students in the pre-scavenger hunt. A pre-survey for teachers was also created as an "assessment for learning" tool and contained two areas for reflection related to the use of databases: 1) statements about instructional practices and 2) the teacher's observations of student behaviours.

This lesson was a collaborative approach with the classroom teacher and the school librarian. It took place over the course of approximately 5 days including the research time students required to complete the assignment. The concepts were taught collaboratively with the librarian explaining the advanced features of the databases and demonstrate the concepts. Step-by-step guides were provided to the students. The students were then assigned their research topics and directed to begin. They were given one or two days to work on their research with the librarian present to assist with the various database features. After that, the lesson on citing sources took place. Typically a very dry topic with students, an interactive activity was developed. The students were then given the post-scavenger hunt to complete. A post-survey for teachers was also provided for professional reflection.

Results

In a moment of curiosity prior to the lesson, four Grade 9 classrooms were polled. Anecdotally, our students said:
- They go to Google or another search engine first to find information.
- Out of 4 different grade 9 classes, only 8 students had used a database before. (8/120 students)
- Students do not use databases because they feel "it's too complicated!"
- Students did not know where to find the passwords required to use the databases

The results of our study certainly support these initial polls. Quantitatively, we asked our students where they go to find information. We gave them 5 choices and asked them to rank their choices in order. Our results confirm that the internet (i.e. a search engine) is their first place to go and then after that their text book and the library website run neck and neck through-out the rankings (Fig. 1). Unfortunately print resources begin with a very slow start with only one student indicating that a library book is their first choice. However, print quickly catches up to the textbook and the library website as alternate choices.
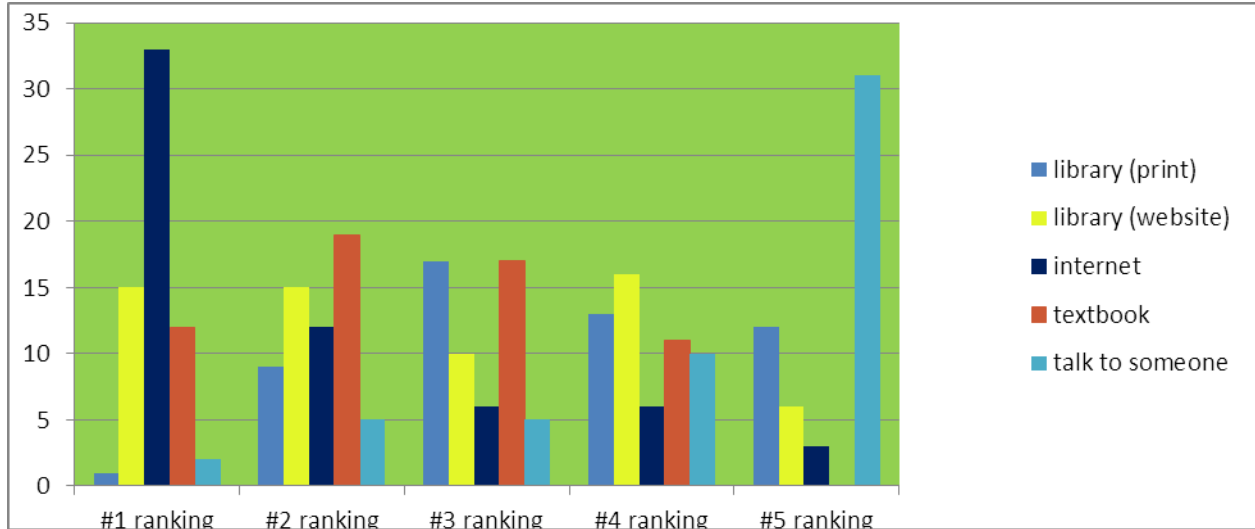
Figure 1: Where do students find information?

Since students obviously rely on the internet for information, we asked them how they determine whether a site is credible; they were given the following options and were asked to rank them in the order of importance:
- author information/publisher information
- it is Wikipedia (sounds like an encyclopaedia)
- copyright information
- number of visitors that the website has had is very high
- there is a contact person
- there is a rating (i.e.: 3 stars)
- witness accounts (people's comments)
- name of an educational establishment or organization
- the name sounds good and reliable
- the website address ends in "edu"
- my friends use it
- saw or heard my teacher use it
- it is one of the first results when a search is completed

The results show that by far, students relied on their teachers for credible sites, followed closely by its association with an educational institution (Figure 2).

How do you determine site credibility?

Categories (top to bottom):
- name sounds
- site ends in edu
- friends use it
- large # of
- witness
- wikipedia
- contact person
- rated
- copyright info
- one of first
- author/
- educational
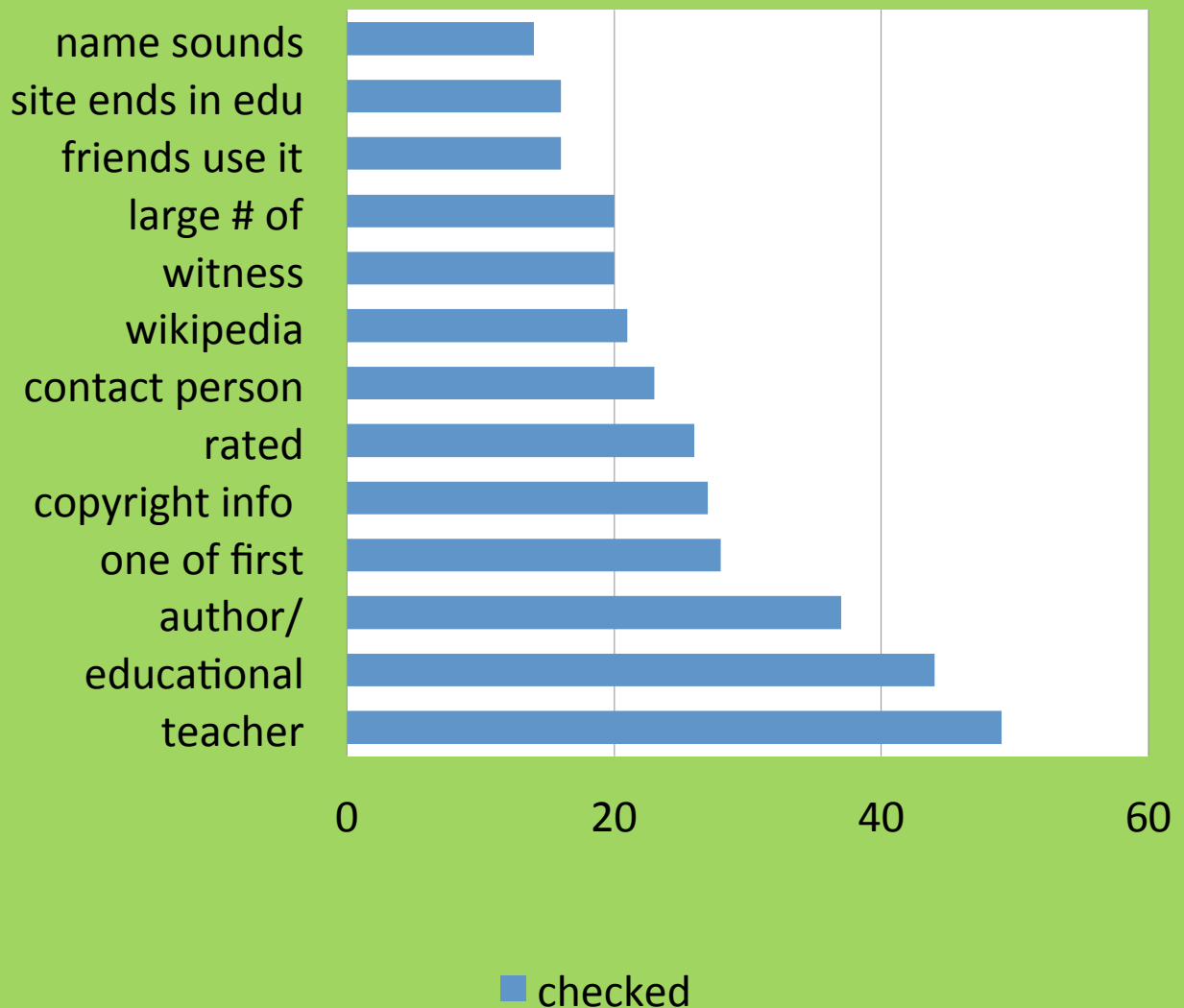- teacher

X-axis: 0, 20, 40, 60

Legend: checked

Figure 2: Determining a site's credibility

Other interesting results from the pre-survey include:
- Students do not know the difference between search engines and databases
- 27% of students did not know what 'e' in e-mail stood for
- 64% of students used a print source in the last month; 14% can't remember the last time they used a print resource
- 36% say they know MLA/APA
- 88% of students believe research skills are very important when using technology

Results from the teacher pre-survey demonstrated that:
- Half the teachers felt nervous teaching about research skills due to their own lack of knowledge or expertise
- Teachers did not all know that librarians were versed in research skills (as part of their training) and that they were willing share this knowledge

Our pre- and post-lesson scavenger hunts provided us with the following evidence:
- 96% were able to find the database links in the post-lesson survey; only 80% were able to find them in the pre-lesson survey.
- 74% knew where the passwords were in the post-lesson survey; only 46% knew where they were in the pre-lesson survey
- When asked for 'what database would you use to search for…'
  - only 5% identified Google as a search engine in the post-lesson survey; 17% identified Google as a database in the pre-lesson survey
  - 77% of these types of questions were answered correctly in the post-lesson scavenger hunt. Only 47% were answered correctly prior to the lesson.
- Qualitatively, the pre-lesson scavenger hunt results showed evidence of group work; the post-lesson scavenger hunt showed much more evidence of individual work. This illustrates a confidence in their searching skills.
- Qualitatively, the post-lesson scavenger hunt demonstrated the use of the specific skills taught resulting in better search results. In fact, 29% of the questions were answered using the skills at the heart of this PLC. The pre-lesson scavenger hunt demonstrated that no student used any strategy beyond a keyword search; these keywords were taken from the research question on the scavenger hunt.

Discussion

In our school, the experience of the librarian and teachers clearly indicated that students needed help with the databases. Everyone wanted the ease of access that the databases provided but students who searched the databases with just keywords would often express frustration indicating it was too difficult to find information on their specific topic. This PLC required:
- the librarian who knew how to exploit the features of the databases to improve the search results
- the teachers who developed the lesson plan to teach these IL skills
- the classroom teachers who accommodated this PLC and evaluated the assignments.

Our original intention was to simply integrate more effective searching skills into the information-seeking practices of grade 9 students. In each subsequent year, the PLC would develop in order to teach students another aspect of the research process or imbed a new searching skill into their culminating assignments while reinforcing what they have learned the previous years. Presumably by graduation, they will have then developed a sophisticated set of skills that will take them through the next stage in life.

Information seeking behaviour

Our results indicate that the first choice of our students is the internet. Because the students rely on the internet so heavily, we wanted to know how they determine the credibility of the information on the site. It is very clear that they rely on their teachers for credible website. Because of this, it means that teachers should be making the effort to demonstrate how they determine a website to be credible rather than just doing a 'google search' themselves.

Having observed the students' information seeking behaviour in the library, it was surprising to see the number of criteria that students claim to use to evaluate websites. It is believed that the students interpreted this question as "If you HAD to determine a site's credibility, what criteria would you use?" On a day-to-day basis students do not appear to actively evaluating a website for credibility. They simply use what comes up on a search. If they do, there would be more questions received such as
- "where is the publisher?"
- "I can't find the contact information"

Although print sources start off really slow, this information source quickly catches up to the textbook and the library website as alternate choices when the internet fails to meet their information needs or when they have been directed to also use non-internet sources.

Teacher survey

Teachers, in many cases, are not familiar with the unique skill set that a librarian brings to the educational environment. Librarians, the information specialists, are highly trained in all information sources and in particular, the use of databases. The strength of these information sources over search engines is the ability to exploit the many features to narrow searches and retrieve relevant results. Librarians are available before and after school, during spare/study periods and lunches to assist and instruct student on effective search strategies and assist them in the research process. The teachers, being otherwise occupied with classes and non-classroom responsibilities of assessment and lesson planning do not have the luxury of providing the unique assistance that a librarian can.

Scavenger hunt results

This data provides evidence that significant learning took place. Students became familiar not only with accessing the databases but used the unique features that the databases provided. Anecdotally, these students were observed in another classroom teaching their peers their newly acquired skills. The survey and pre- and post-lesson scavenger hunts, helpful for this study, will continue as part of the lesson to allow for reflective learning.

It is also felt that grade 9 appears to be a perfect time to introduce these concepts – new school, new expectations so why not a more sophisticated approach to looking for information?

Citing their sources

Initially, the number of students starting Grade 9 who were familiar with MLA/APA citations styles was surprising. However, this was the initial group and unfortunately we were unable to catch each of the Grade 9 classes at the beginning of their first term. As such many of these students were introduced to official citations styles in other classes, thereby falsely increasing these results.

The interactive activity that was developed kept these students engaged and the visual use of colour appeared to be a critical feature. Students were able to physically see the placement of and match the citation components. Citing sources, an activity often reserved for the more academic classes, was successful even in classes which included students of all academic strengths.

Summary

Our qualitative and quantitative results revealed so much more than we expected that we felt they were worth sharing with colleagues outside our school environment. Furthermore, we feel we have the potential for a longitudinal study of the research skills and information-seeking skills within a high school population. The benefits of embedding the IL skills into the curriculum have been well established as best practice (Bruce, 2000; Hine et al, 2002). Utilizing the unique skill sets of a professionally trained librarian, in our case, has proven to be a significant part of the learning process for our students.

Glossary

IL – Information Literacy – Information Literacy is a set of skills necessary to find the information one needs. This includes understanding the structure of information, automated search tools and the knowledge of commonly used search strategies. (Information Literacy, 2012)

PLC – A Professional Learning Community (PLC) is a group of education professional who share common visions, values and goals and work together to improve teaching and student learning (Glossary, 2011)

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